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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,694	02/27/2004	Stephen M. Potter	3932	9316

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DOUGHERTY CLEMENTS  
1901 ROXBOROUGH ROAD  
SUITE 300  
CHARLOTTE, NC 28211

EXAMINER
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MCNELIS, KATHLEEN A

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 08/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/789,694

Applicant(s)

POTTER ET AL.

Examiner

Kathleen A. McNelis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 4-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **Claims Status**

Claims 1, 2, and 4-10 remain for examination wherein claims 1, 5 and 7 are amended.

### **Status of Previous Rejections**

The previous rejection of claims 1 and 5 under 35 U.S.C. 112 are withdrawn in view of applicant's amendments to the claims.

The previous rejection of claims 1, 3-6 and 9 under 35 U.S.C. 103(a) as being unpatentable over Meissner et al. (U.S. Pat. No. 5,437,708 in view of PBK Engineering Ltd (1992) and Stephens, Jr. (U.S. Pat. No. 5,810,906) is maintained.

The previous rejection of claim 2 under 35 U.S.C. 103(a) as being unpatentable over Meissner et al. (U.S. Pat. No. 5,437,708 in view of PBK Engineering Ltd (1992) and Stephens, Jr. (U.S. Pat. No. 5,810,906) as applied to claim 1 and further in view of Stoughton (1908) is maintained.

The previous rejection of claim 7 under 35 U.S.C. 103(a) as being unpatentable over Villarreal-Trevino et al. (U.S. Pat. No. 6,395,056) in view of Meissner et al. (U.S. Pat. No. 5,437,708) is maintained.

The previous rejection of Claims 8 and 10 under 35 U.S.C. 103(a) as being unpatentable over Villarreal-Trevino et al. (U.S. Pat. No. 6,395,056) in view of Meissner et al. (U.S. Pat. No. 5,437,708) as applied to claim 7, and further in view of Becerra-Novoa et al, (US patent 5,445,363) is maintained.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

Claims 7, 8 and 10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 7, examiner cannot find support for the new limitation "...greater than 150 °C" in the original disclosure.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3-6, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meissner et al. (U.S. Pat. No. 5,437,708) in view of PBK Engineering Ltd (1992) and Stephens, Jr. (U.S. Pat. No. 5,810,906).

Meissner et al. in view of PBK Engineering Ltd and Stephens, Jr. is applied as discussed in the 2/27/2006 Office Action.

Regarding the amended limitations of claim 1:

While Meissner et al. in view of PBK Engineering Ltd and Stephens, Jr. does not recite that the lump ore is sedimentary, examiner asserts in the lack of evidence to the contrary that the method is suitable for sedimentary ore.

With respect to the range of about 200 °C, it would have been obvious to one skilled in the art to reduce the drying temperature from about 300 °C to about 200 °C in Stephens at the cost of

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increasing the drying time. Furthermore, it is well settled that where the principal between a claimed process and that taught by reference is a temperature difference, it is incumbent upon applicants to establish the criticality of that difference (Ex parte Khusid, et al., 174 USPQ 59).

Regarding the amended limitation of claim 5:

The temperature range disclosed in Stephens, Jr. of at least about 600 °C is within the disclosed range of in excess of 300 °C.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Meissner et al. (U.S. Pat. No. 5,437,708 in view of PBK Engineering Ltd (1992) and Stephens, Jr. (U.S. Pat. No. 5,810,906) as applied to claim 1 and further in view of Stoughton (1908).

Meissner et al. in view of PBK Engineering Ltd (1992) and Stephens, Jr. and further in view of Stoughton (1908) is applied as discussed in the 2/27/2006 Office Action.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Villarreal-Trevino et al. (U.S. Pat. No. 6,395,056) in view of Meissner et al. (U.S. Pat. No. 5,437,708).

Villarreal-Trevino et al. in view of Meissner et al. is applied as discussed in the 2/27/2006 Office Action.

Regarding the amended limitation to claim 7, “...bin having communication with waste combusted off-gas, wherein said feed material storage bin is a heated and drying storage bin for lump iron ore until the feed material has ~~means for removing waste off-gas communicating with said storage bin fore heating and drying contents thereof to...~~” examiner contends that in the apparatus taught by Villarreal-Trevino et al. in view of Meissner et al., there is communication between combustion off gas and feed as discussed on the 1<sup>st</sup> paragraph of page 10 of the 2/27/2006 Office Action.

Regarding the amended limitation of "...greater than 150 °C and less than 200 °C", while Villarreal-Trevino et al. in view of Meissner et al. does not recite this limitation, claim 7 is an apparatus claim. "[A]pparatus claims cover what a device *is*, not what a device *does*" (M.P.E.P. 2114). Examiner maintains in the absence of evidence to the contrary that the preheater disclosed by Villarreal-Trevino et al. is capable of heating the contents to a temperature of greater than 150 °C and less than 200 °C and drying the contents to less than about 0.5% by weight moisture, and therefore meets this claim limitation.

Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Villarreal-Trevino et al. (U.S. Pat. No. 6,395,056) in view of Meissner et al. (U.S. Pat. No. 5,437,708) as applied to claim 7 above, and further in view of Becerra-Novoa et al. (US patent 5,445,363).

Villarreal-Trevino et al. in view of Meissner et al. and Becerra-Novoa et al. is applied as stated in the 2/27/2006 Office Action.

### ***Response to Arguments***

Applicant's arguments filed 5/26/2006 have been fully considered but they are not persuasive.

Applicant's arguments are summarized as follows:

1. Examiner did not provide a complete copy of the PBK Engineering reference.
2. The reason for storing the ore in the PBK Engineering reference is different than for the claimed invention, i.e. in the claimed invention it results in aging whereas in the PBK Engineering reference the 4-day stockpile is in case there is a cessation of ore from the mine.
3. Increasing the drying temperature would increase the generation of fines, especially in the absence of a long aging storage process.

4. Regarding claims 4 and 6, examiner has asserted that the cyclones and rotary kilns taught by Stephens are covered by the term "storage bin", however applicant disagrees because in cyclones and kilns the material is kept moving.
5. Also regarding claims 4 and 6, the gas of Stephens' is sulfur bearing and applicants would not want to add sulfur dioxide to the storage bin nor would this be desired in Meissner.
6. Regarding claim 5, the amended claim limitation to the original temperature of 300 °C is different than Stephen's temperature of 600 °C.
7. Regarding claim 2, because Stoughton does not state that the ore is stockpiled for at least 1 month, the rejection is overcome.
8. Regarding claim 7, applicant has amended the temperature to between 150 and 200 °C which is different than Villarreal-Trevino et al. teaching temperature of 700 °C. Further, it is not correct that Villarreal-Trevino et al. could operate at a lower temperature.
9. Regarding claims 8 and 10, applicant does not agree that it would have been obvious to insulate the pre-drier of Villarreal-Trevino et al. because Villarreal-Trevino et al. might require cooling to keep the temperature down.

Examiner's responses are as follows:

1. Examiner previously provided copies of the cited passages of the 239-page PBK Engineering reference. A copy of the complete text is now provided.
2. The process disclosed by PBK Engineering meets the limitation recited in the instant claim of stockpiling the solid lump feed material for a predetermined time. While PBK Engineering does not state that this will release internal stresses, examiner asserts in the absence of evidence to the contrary that this would be the case; since the process disclosed by Meissner et al. in view of PBK Engineering Ltd and Stephens, Jr. appears to be the same or substantially similar to the claimed invention, the same results would be expected. Therefore although the motivation for creation of a stockpile in Meissner et al. in view of PBK Engineering Ltd and Stephens, Jr. is different than the claimed invention, examiner asserts in the absence of evidence to the contrary that the result will be the same.

3. Arguments do not take the place of evidence. Applicant's have not provided sufficient evidence (e.g. comparative test data) that an increase from drying temperature of from 200 °C to 300 °C would materially affect the process. Further, it would have been obvious to one skilled in the art to reduce the drying temperature from about 300 °C to about 200 °C in Stephens at the cost of increasing the drying time.
4. In the instant specification, applicant discloses that the lump ore is stored for a few months in stockpiles before being moved into a storage bin where it is heated (p. 8 lines 17-25). Further, Fig. 1 shows the storage bin (26) as the upstream equipment before the furnace, therefore one of ordinary skill in the art would expect material to move from the stockpile, through the storage bin to the furnace as is shown on Figure 1. Examiner finds nothing to suggest that the material must remain for any specified length of time in the storage bin or that material cannot move through the bin.
5. Examiner does not agree with the argument related sulfur dioxide in Stephens Jr. To summarize the discussion on pages 5-6 of the 2/27/2006 Office action, the ore as received contains moisture and sulfur that retards the conversion of iron oxides to carbides. Stephens Jr. teaches removal of sulfur by preheating the presence of an oxidizing gas. This is a motive discussed on pages 5-6 of the 2/27/2006 Office action for preheating the ore. Examiner has not suggested that the sulfur bearing exhaust gas from this process be used for the preheating, but rather that off-gas from Meissner et al. in view of PBK Engineering Ltd is used as the source gas (1<sup>st</sup> paragraph of p. 7 of 2/27/2006 Office Action).
6. The amended claim limitation states that temperatures are in excess of 300 °C, which includes the temperature 600 °C and the range in Stephens Jr. of at least about 600 °C.
7. The rejection is based on Stoughton disclosing that the capacity of the stockpile is a result effective variable (see M.P.E.P 2114.05, II, B) which one of ordinary skill in the art would optimize to provide sufficient capacity for operation and ensure against disruptions. The disclosure in Stoughton that shipping channels may be



closed during winter icing is motivation for securing a supply of more than one month (p. 8 of 2/27/2006 Office Action).

8. As discussed above regarding the rejection of claim 7, since this is an apparatus claim the device need only be capable of meeting the process limitations. While examiner agrees that Villareal-Trevino et al. discloses process limitations that make operating below 600 °C undesirable, examiner does not agree that it would not be possible for the disclosed device to do so. Examiner maintains that the pre-drier in Villareal-Trevino et al. is capable of heating to between 150 and 200 °C and therefore meets the claimed limitation.
9. Examiner does not agree that a potential need for cooling in one part of the process obviates the desirability of insulation in another part of the process. Applicant has claimed insulation of the heated feed transportation means, which corresponds to process stream (26) in Villareal-Trevino et al. Villareal-Trevino et al. discloses cooling the reduced iron ore leaving the furnace to prevent reoxidation (col. 4 lines 34-52), and an embodiment wherein recycled reducing gas is passed through a heat exchanger lowering the temperature of combustion gas (col. 5 lines 1-49), however examiner does not find support in Villareal-Trevino et al. for applicant's assertion that the preheated ore process stream (26) is cooled.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kathleen A. McNelis whose telephone number is 571 272 3554. The examiner can normally be reached on M-F 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

7/27/2006  
/KAM



  
ROY KING  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700